Endodermal differentiation of human ES cells

Grant Award Details

Endodermal differentiation of human ES cells

Grant Type:　　　　SEED Grant

Grant Number:　　　RS1-00308

Investigator:

Name:	Didier Stainier
Institution:	University of California, San Francisco
Type:	PI

Disease Focus:　　　Diabetes, Metabolic Disorders

Human Stem Cell Use:　Embryonic Stem Cell

Award Value:　　　　$611,027

Status:　　　　　　Closed

Progress Reports

Reporting Period:　　Year 2

View Report

Reporting Period:　　NCE

View Report

Grant Application Details

Application Title:　　Endodermal differentiation of human ES cells

Public Abstract: The goals of this proposal are to investigate endodermal differentiation and proliferation in human ES cell cultures. Endodermal cells give rise to the epithelial lining of the respiratory and digestive tract as well as to the liver and pancreas. The future treatment of diseases such as type I diabetes using stem cell therapy relies on our ability to differentiate stem cells into endoderm, a prerequisite step to forming pancreatic beta cells. In 2005, D'Amour et al. reported the efficient differentiation of human ES cells into endoderm. This report provides a potentially effective protocol that needs to be further evaluated (specific aim 1). In addition, given that the success of stem-cell therapy depends on our ability to generate large numbers of differentiated cells (e.g. 200-700 million beta cells per patient are currently being used in the Edmonton protocol), we will investigate the ability of the endodermal generated in specific aim 1 cells to proliferate in culture (specific aim 2).

Statement of Benefit to California: Stem cell therapy relies on the development of efficient and reproducible protocols to differentiate stem cells into various cell types such as pancreatic beta cells. The first step to making pancreatic beta cells is the differentiation of stem cells into so-called endodermal cells, one of the 3 basic cell types of the body. In addition, in order to make stem cell therapy a viable option, one needs to be able to generate large numbers of differentiated cells from stem cells. Our proposal aims to establish such protocols. The health of California and its citizens will ultimately benefit from this research as it will help develop stem cell therapies.

Source URL: https://www.cirm.ca.gov/our-progress/awards/endodermal-differentiation-human-es-cells